Let assume x1, x2, and x3 are the number of units of three almirahs, respectively.

Primal Problem:

Max Z = 40 x1 + 80 x2 + 60 x3

s. t.

x1 + 4/3 x2 + 2/3 x3 <= 600

2/3 x1 + 1/3 x2 + 2/3 x3 <= 400

1/3 x1 + 1/3 x2 + 1/3 x3 <= 800

x1, x2, x3 >=0

**Microsoft Excel 16.0 Answer Report**
**Worksheet: [OR.xlsx]Sheet3**
**Report Created: 05-02-2022 11:59:40**
**Result: Solver found a solution. All Constraints and optimality conditions are satisfied.**
**Solver Engine**

Engine: Simplex LP
Solution Time: 0.063 Seconds.
Iterations: 5 Subproblems: 0

**Solver Options**

Max Time Unlimited, Iterations Unlimited, Precision 0.000001, Use Automatic Scaling
Max Subproblems Unlimited, Max Integer Sols Unlimited, Integer Tolerance 1%, Assume NonNegative

Objective Cell (Max)

| Cell | Name | Original Value | Final Value |
|---|---|---|---|
| $B$7 | Maximize | 0 | 46000 |

Variable Cells

| Cell | Name | Original Value | Final Value | Integer |
|---|---|---|---|---|
| $B$2 | X1 | 0 | 0 | Contin |
| $B$3 | X2 | 0 | 200 | Contin |
| $B$4 | X3 | 0 | 500 | Contin |

Constraints

| Cell | Name | Cell Value | Formula | Status | Slack |
|---|---|---|---|---|---|
| $B$10 | | 600 | $B$10<=$D$10 | Binding | 0 |
| $B$11 | | 400 | $B$11<=$D$11 | Binding | 0 |
| $B$12 | | 533.3333333 | $B$12<=$D$12 | Not Binding | 266.6666667 |

| | | | | |
|---|---|---|---|---|
| $B$13 | 0 | $B$13>=$D$13 | Binding | 0 |
| $B$14 | 200 | $B$14>=$D$14 | Not Binding | 200 |
| $B$15 | 500 | $B$15>=$D$15 | Not Binding | 500 |

Dual Problem:

Min K = 600 y1 + 400 y2 + 800 y3

s. t.

y1 + (2/3) y2 + (1/3) y3 >= 40

(4/3) y1 + (1/3) y2 + y3 >= 80

(2/3) y1 + (2/3) y2 + (2/3) y3 >= 60

Y1, y2, y3 >=0

**Microsoft Excel 16.0 Answer Report**
**Worksheet: [OR.xlsx]Sheet3**
**Report Created: 05-02-2022 11:58:27**
**Result: Solver found a solution. All Constraints and optimality conditions are satisfied.**
**Solver Engine**

Engine: Simplex LP
Solution Time: 0.047 Seconds.
Iterations: 5 Subproblems: 0

**Solver Options**

Max Time Unlimited, Iterations Unlimited, Precision 0.000001
Max Subproblems Unlimited, Max Integer Sols Unlimited, Integer Tolerance 1%, Assume NonNegative

Objective Cell (Min)

| Cell | Name | Original Value | Final Value |
|---|---|---|---|
| $B$7 | Minimize | 0 | 46000 |

Variable Cells

| Cell | Name | Original Value | Final Value | Integer |
|---|---|---|---|---|
| $B$2 | y1 | 0 | 50 | Contin |
| $B$3 | y2 | 0 | 40 | Contin |
| $B$4 | y3 | 0 | 0 | Contin |

Constraints

| Cell | Name | Cell Value | Formula | Status | Slack |
|---|---|---|---|---|---|
| $B$10 | | 76.66666667 | $B$10>=$D$10 | Not Binding | 36.66666667 |
| $B$11 | | 80 | $B$11>=$D$11 | Binding | 0 |
| $B$12 | | 60 | $B$12>=$D$12 | Binding | 0 |

| | | | | |
|---|---|---|---|---|
| $B$13 | 50 | $B$13>=$D$13 | Not Binding | 50 |
| $B$14 | 0 | $B$14>=$D$14 | Binding | 0 |
| $B$15 | 0 | $B$15>=$D$15 | Binding | 0 |